THESIS

FOR THE AWARD OF DEGREE OF

DOCTOR OF MEDICINE

SESSION 2020-2023

TO DETERMINE THE IMPACT OF COVID 19 ON PSYCHOLOGICAL BEHAVIOUR IN SCHOOL GOING ADOLESCENTS (14-17YRS AGE GROUP)

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LIST OF ABBREVIATIONS

1	UNICEF	United Nations Children's Fund
2	WHO	World Health Organisation
3	GAD	General Anxiety Disorder
4	DSM-5	Diagnostic and Statistical Manual of Mental Disorders
5	DASS Y	Depression Anxiety Stress Scales for Youth

INTRODUCTION:

Corona virus disease had imposed significant impact on global health. On December 16th, 2019 this virus started spreading in Wuhan and from there all over the world. It infected over 37 million cases and over 1 million confirmed deaths. The one who is infected and survived must deal with the psychological consequences.

Even though there is a negative impact of infection and quarantine on adults, there is limited research on the psychological impact of covid 19 infection on school going children. The children who were quarantined in hospitals, or in homes with family members suffered with feeling of sadness, worrying about the health of the family members. Children in schools prefer to play, eat and sit in groups. Even though if we follow social distancing norms in school's children may not follow these new protocols as they are not aware of the depth of the situation. So, Governments all over the world have closed the schools and colleges as the first step to break the chain of infection. children were at home for longer period of time than ever before in recent memory. This has impacted the quality of relationships among parents, children and siblings. (1)

It has been reported that during this pandemic there were many psychosocial and behavior problems among children and adolescents such as inattention, irritability, distraction, and fear of asking questions about the pandemic and the risk was greatly increased in children with pre-existing mental health conditions.

Although home should be the safest place for child, sexual, psychological and physical abuse have shown a significant rise. In the pandemic time helpline numbers for mental health counselling are seeing a huge surge in calls for conditions like Anxiety, adjustment issues topping the list. Domestic violence incidence in India was at 10 years high during covid 19 lockdown. Children of single parents and parents of medical professional back ground who get in close contact with covid19 patients while taking care of them are more likely to grieve from adjustment problems if their parent gets quarantined.

In addition, transient or prolonged parent child separation may lead to significant psychosocial impact. Even though school closure was likely temporary, children were protected from issues that were only expected while appearing in the school like Oppression, pressure of academic performance which played a major role in contributing to their stress leading to anxiety / depression. Few children would have learned new skills, hobbies like music, leisure reading, spending quality time with elders. Many studies showed that children were not affected heavily with covid 19. They were either asymptomatic carriers or might show mild symptoms and this low infectivity rate hides the damage causing to the mental health of

children due to lockdowns and other curbs on children due to corona pandemic. Surveys have found that children who are quarantined seemed to be 4 times more stressed than those who are not.

Distressing events such as separation from family and friends, being aware of critically ill members affected with corona virus, passing of loved ones or even thinking of themselves possibly dying from the virus would have a negative outcome on the mental health. The guardians, private institutions, and health authorities protect and guard the mental health of children consistently through open communication and facilitate professional counselling to address stress. (2)

UNICEF along with some other organizations conducted a survey over 1700 children in 104 countries to understand how this pandemic affected their mental health and it shown that children and adolescents had high level of stress which might have affect their brain development, sometimes in an irreparable manner.

A tool brought by WHO named "Helping Children Cope with Stress During Covid19 Outbreak". Many organizations around the world helping the children via text messages and telephone calls to deal with their mental health issues and the queries they had about the covid 19 and precautions that need to be taken and to keep children from lagging in academics government and many private institutions started online classes.

NEED FOR STUDY:

There are few accomplished studies that had been done and many more that are still going on the psychological impact of covid 19 particularly in the adolescent age group, in which many of them are in the China and very less in various parts of the world.

As India is a democratic country with such a dense population yet studies based on Indian population are very less. So, this study was conducted to assess the impact of covid 19 on mental health of adolescents in Ghaziabad, Uttar Pradesh, India.

Besides covid 19 has impacted on mental health of younger population as if they will be promoted anyhow, so some of them have taken their life and studies for granted. With this reality keeping in mind this study was taken as a challenge in order to give some insight to this population. Moreover, being a health professional, who ever having or carrying mental health issues, can be taken for immediate counselling so that their life may become easy.

Among this study sample there is a considerable proportion of students who are ready to face CBSE board examination which needs immediate attention

AIM AND OBJECTIVES

AIM –

To determine the impact of covid 19 on psychological behaviour in school going adolescents (14-17 years age group)

OBJECTIVES

Primary Objective: To identify depression, anxiety and stress in school going adolescents (14-17 years) during covid -19 pandemic

Secondary Objectives:

1) To assess the level of knowledge in school adolescents about covid -19 pandemic and safety precautions

2) To assess the impact of factors like age, gender, covid 19 infection in the family, deaths in the family, grades in the previous class on anxiety, depression and stress.

REVIEW OF LITERATURE

There are few articles and very limited research available on impact of covid 19 on mental health of school going children.

ANXIETY: It is an apprehensive feeling occurs by suspecting danger which may be internal or external because of not having awareness about the covid 19. children are little apprehensive about this pandemic situation because they are worried about the health of their parents who are infected or quarantined away from the family and who are hospitalised and some of them are worried about their own health.

DEPRESSION: It is a mental state characterized by feelings of sadness, loneliness, despair, low confidence and criticism themselves with associated signs like psychomotor retardation, agitation, insomnia and anorexia. Some children don't feel there is nothing left for them or their life is miserable after having death in the family. While some of them doesn't like their life during the lock down may be because of restrictions to their regular outdoor activities or not able to spend their time with their loved ones.

STRESS: It is psychical/chemical or emotional factor that causes bodily or mental tension which might become a causative factor for the certain diseases. Particularly children of the adolescent age group might be suffering with a lot of stressful events like easily getting anger or over reacting to simpler situations, getting irritated or annoyed with other people while having a conversation.

During covid 19 pandemic particularly during lock down period children are restricted to the homes and refused to meet people from outside. This led to developing immense amount of mental pressure which exhibits in many forms like irritability, worries, anxiety, fearful ness, depression. These symptoms can co-exist with one another in many children at different grades.

Duan et al., 2020 in their cross-sectional online survey including 3254 adolescents and 359 children with age group of 7-18yrs of both male and female and conducted study with an objective to demonstrate the psychological effect of covid 19 pandemic on mental health. In their study they stated that adolescents had anxiety of (29.27 ± 19.79 %) associated with significant factors like female, living in cities, emotion focused coping style and depression of 22.28% associated with significant factors like internet and smart phone addiction. (3)

Chen F et al., 2020 in their cross-sectional study included 1036 adolescents of age group 6-15 yrs of both male and female in Guiyang, China with an objective to identify Depression, anxiety

in adolescents during covid 19 pandemic. Their study result stated that 196 (18.92%) cases with anxiety, 112(11.78%) cases with depression,68(6.56%) cases with both depression and anxiety. They conducted logistic regression and showed that age, gender(females), education of parents, companion on weekdays and physical exercise associated with Depression, and that gender(females), physical exercise and companion on weekdays associated with anxiety. (4)

Tang et al., 2021 conducted a cross sectional survey including 4342 primary and secondary school children to evaluate mental health of children during covid19 school closure from shanghai, china. In their study they stated that there are 3 symptoms seen predominantly affecting the mental health i,e anxiety (24.9%),depression(19.7%),and stress(15.2%). They also stated that 21.4 % children become more satisfied with their life during school closure. (5)

Qi et al., 2020 conducted a cross sectional online survey including 9554 adolescents of age group 11-20 yrs. age group in shanghai, China from 20feb – 27feb 2020 with an objective to assess the level of anxiety using 7 item Generalised anxiety disorder (GAD-7). In their study result there are1814 (19%) adolescents suffering with anxiety, of them 14.5% are mild, 3.1% are moderate and 1.5% are severe. They conducted a multiple logistic regression analysis showing that females, sleep duration < 6hrs/day, having more homework than before were significantly associated with increased risk of anxiety. (6)

McElroy et al., 2020 conducted a study with an objective to find demographic and health factors associated with covid pandemic anxiety in adolescents. They included 698 adolescents of both males and females in the study .The result of the study shown that there are 2 factors (Disease anxiety and consequence anxiety) that are associated with demographic and health factors.(7)

Buzzi et al., 2020 conducted a cross sectional survey over large group of adolescents in Italy with an objective to investigate the concerns, the level of information on covid 19 pandemic, lock down measures and its impact on daily life. Their study shown that covid 19 affected emotions and life style, and it also affected relationship with family and friends. (8)

Ellis et al., 2020 conducted a study including 1054 adolescents of both male and female of age group 14-18yrs with an objective to examine the relationships between reported stress and psychological adjustment during initial covid19 crisis. In their study they showed there is a little but significant corelation between physical activity and lower depression. (9)

Saurabh et al., 2020 conducted a cohort study with an objective to describe the psychological impact of quarantine measures during covid 19 breakdown. In their study they included 121 adolescents who are quarantined with 131 adolescents who are not quarantined. The study shown that psychological stress

is present predominantly in quarantined children of which worry (68.59%), helplessness (66.11%), and fear (61.98%) are the most common moods seen in the quarantined children. (10)

Tee et al., 2020 included 1879 population in their online survey with an objective to examine the prevalence of psychiatric symptoms and the factors contributing to it. In their study they reported 16.9% participants had moderate to severe depressive symptoms, 28.8% had moderate to severe anxiety and 13.4% had moderate to severe stress which increased gradually with increase in age group. They also stated that young children, female gender, quarantined or prolonged home stay, poor health status, concern for family members were significantly associated with psychological changes and higher levels of Depression, anxiety, and stress ($p<0.05$). (11)

Zhou et al., 2020 conducted a cross sectional study including 8079 students of age group 12-18 yrs of both male and females from China with an objective to assess prevalence rate and sociodemographic association with depression and anxiety symptoms during covid19 epidemic. In their study by using General Anxiety Disorder (GAD-7) questionnaire and Patient Health Questionnaire (PHQ-9) they stated that 43.7% had depressive, 37.4% had anxiety and 31.3% had both anxiety and depressive symptoms. Multivariable regressive analysis shown that female gender, higher school children, low level of awareness about covid19 had high prevalence of developing depressive and anxiety symptoms. (12)

Jiao et al.,2020 conducted a preliminary study in Shaanxi province including 320 children and adolescents to know the psychological and behaviour problems in children during covid 19 epidemic and they conducted the study by a using a questionnaire fulfilling the Diagnostic and Statistical Manual of Mental Disorders(DSM-5) criteria .The study shown that younger children manifest symptoms like clinginess and children of 6-18yrs age group had irritability, inattention and fear that parents might contract infection.(13)

Michela Deolmi et al. reviewed literatures about Covid 19 pandemic on mental health of adolescents and children and stated that there is high prevalence of anxiety and depressive symptoms in adolescents due to parent's stress and social isolation. He also stated that high grade students, low income families and females are at high risk of developing these symptoms. Preventive measure, telemedicine, video counselling, and telepsychiatry services are helpful to reduce impact of covid 19 on mental health**.** (14)

Meherali, S et al. and his associates conducted a systematic review on 18 articles according to PRISMA guidelines focusing on impact of covid 19 on mental health of children and adolescents .Based on the articles reviewed they concluded that the children and adolescents are more likely to develop anxiety , depression, disturbances in sleep , appetite and impairment in social interactions .Interventions like

support services and clinician led psychosocial and mental health services reduced the mental health issues among children and adolescents.(15)

The level of understanding the situations evolves in children throughout their child hood and adolescents. So, parents must take child's age in to account while providing information in an easily understandable way. Effective communication is must require when providing sensitive information like life threatening illness so that it will be a major beneficiary to long term psychological wellbeing of both children and the family. (16)

Zhang et., al 2020 conducted a cross sectional study involving 493 junior school children and 532 high school children with an aim to understand the psychological consequences such as Depression, anxiety and stress during covid 19 pandemic. Their study shown Depression (14.4% in junior school, (9.4%) in high school, anxiety (20.3%) in juniors and (17.9%) in high school and stress (6.9%) in juniors and (9.4%) in high school children. Their main result included that positive coping factors like physical activities, developing a new skill, helps to decrease depressive, anxiety and stress while negative coping factors like addiction to smart phones, no physical activity, cocaine or substance abuse leads to increase in depressive, anxiety or stress. (17)

COVID 19 outbreak brought many changes in daily life especially children and adolescents. School closures affecting about half of the global student population. social distancing and lock down restrictions brought serious risks of loneliness, decreased physical activity in addition to higher levels of anxiety and depression in children and adolescents. (9)

So, parents and the society should encourage the children at home developing new skills with the resources that are available to them and the level of possibility. It keeps the child occupied and decreases to worry about the covid situation and maintain a good healthy environment in the family by avoiding physical or verbal abuse, avoiding discussion of financial matters in front of them and showing much affection towards them. (18)

MATERIAL AND METHODS

MATERIAL AND METHODS

TYPE OF STUDY: Cross sectional Observational study

PLACE OF STUDY:

Private owned schools in urban Ghaziabad situated close to study hospital.

Students (14-17 years) studying in class 8^{th} to 10^{th} standard were enrolled.

SAMPLE SIZE:

Using the sample size formula sample size of 300 was calculated

$$n = Z^2P(1-P)/d^2$$

N= sample size
Z= level of confidence was kept at 95%
P= prevalence
d= precision of (4%) was taken

STUDY PERIOD: July 2021 to June 2022

INCLUSION CRITERIA:

- Students between 14 to 17 years of age of both sexes between 8^{th} to 10^{th} classes.

EXCLUSION CRITERIA:

- Children with mental diseases
- Consent not given by students / parents

Methodology:

The study was explained in detail to school authorities, students and written consent was taken from the students and their parents. The students and parents who fulfilled the inclusion and exclusion criteria were enrolled for the study. Institutional ethical committee approved the study.

The principal investigator explained the questionnaires to the students. Any doubts in the questionnaire were dispelled and the answer sheets were collected for data analysis. Help was taken from the school teachers to get the children understand any doubts later on about any questions in simpler manner who they didn't understand earlier. (19)

Strict confidentiality was maintained through -out the study. The collected data was tabulated in M S Excel sheet & STATA 17 software was used for statistical analysis.

To gather the data, the following questionnaires were used:

1)**Basic demographic detail** recorded were age, gender, Socioeconomic status. All data was kept confidential.

2)**DASS -Y scale** was used for assessment of Depression, anxiety and stress. It is a validated tool for assessment of depression, anxiety and stress and has been used extensively in past in children between 6- 18 years of age. It consists of 21 simple questions (19). Interpretation of DAAS- Y scale relies on the collective score given by the participants to every sub cluster of queries. There are 3 subgroups of queries, each sub cluster contains7 questions and for every question score range is 0-3. (20)

Grading the level of depression, anxiety and stress based on the score is given below

Depression

score	Level of severity
0	no
1-7	mild
8-14	moderate
15-21	severe

Anxiety

score	Level of severity
0	no

1-7	mild
8-14	moderate
15-21	severe

Stress

score	Level of severity
0	no
1-7	mild
8-14	moderate
15-21	severe

3) **Questionnaire** form containing 15 questions was designed to assess the level of knowledge regarding covid 19 with a simple answering option of yes/no. (attached in Annexure)

Level of knowledge about covid :For every answer of" yes", a score of 1 was given and range of final score varied between 1-15 ,which was interpreted as follows-

Total score of performa	Level of knowlege
1-5	Good
6-10	Very good
11-15	Excellent

STATISTICAL ANALYSIS:

The incidence of Depression, anxiety and stress was calculated from DASS-Y sheet and their association with study predictor variables (age, gender, academic grades in previous class, and level of knowledge about covid19) was analysed by chi square test with level of significance at below 5% and confidence interval of 95% was also noted.

OBSERVATION AND RESULTS

TABLE 1: Gender distribution of enrolled participants in the study

GENDER	NUMBER (n)	Percentage (%)
MALE	152	50.6%
FEMALE	148	49.3%
Total	300	100%

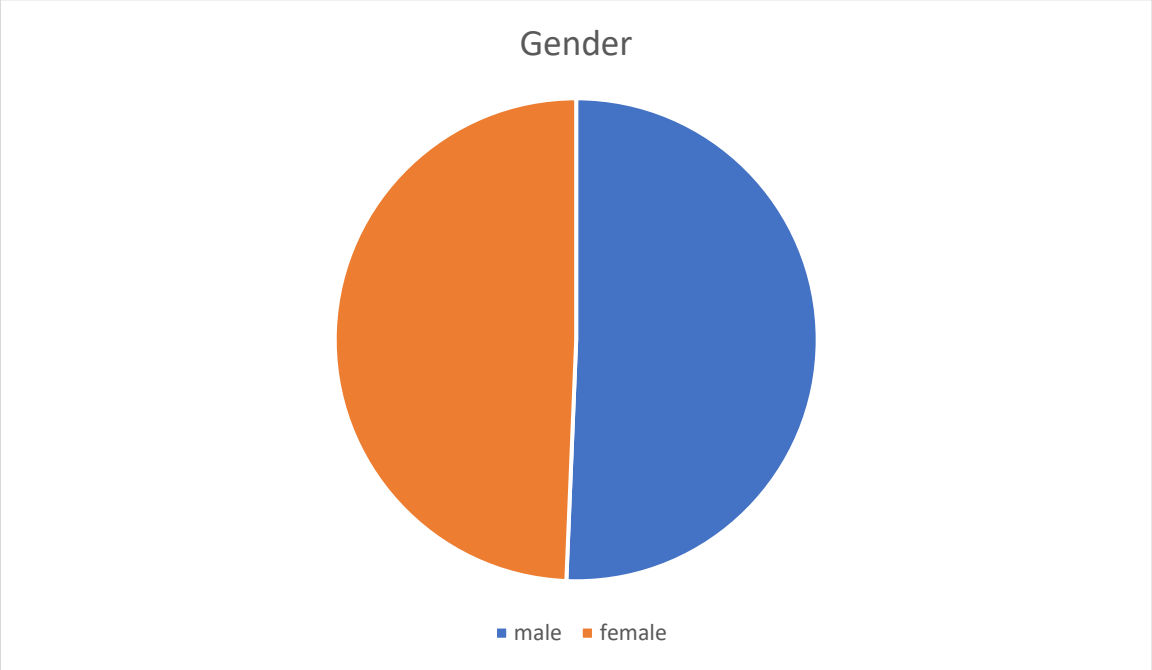

Fig 1 Gender distribution of participants enrolled in the study.

Table1 and Fig 1 showed that 152 (50.6%) males and 148 (49.3%) females were enrolled in the study.

This shows there is almost equal distribution of sexes

TABLE 2: Age distribution of study participants enrolled in the study

Age Group	Number	percentage
14yr-14 yr 11 months	113	37.66%
15yrs-15yr 11 months	86	28.66%
16yrs-16yr 11 months	101	33.66%
Total sample	300	100%

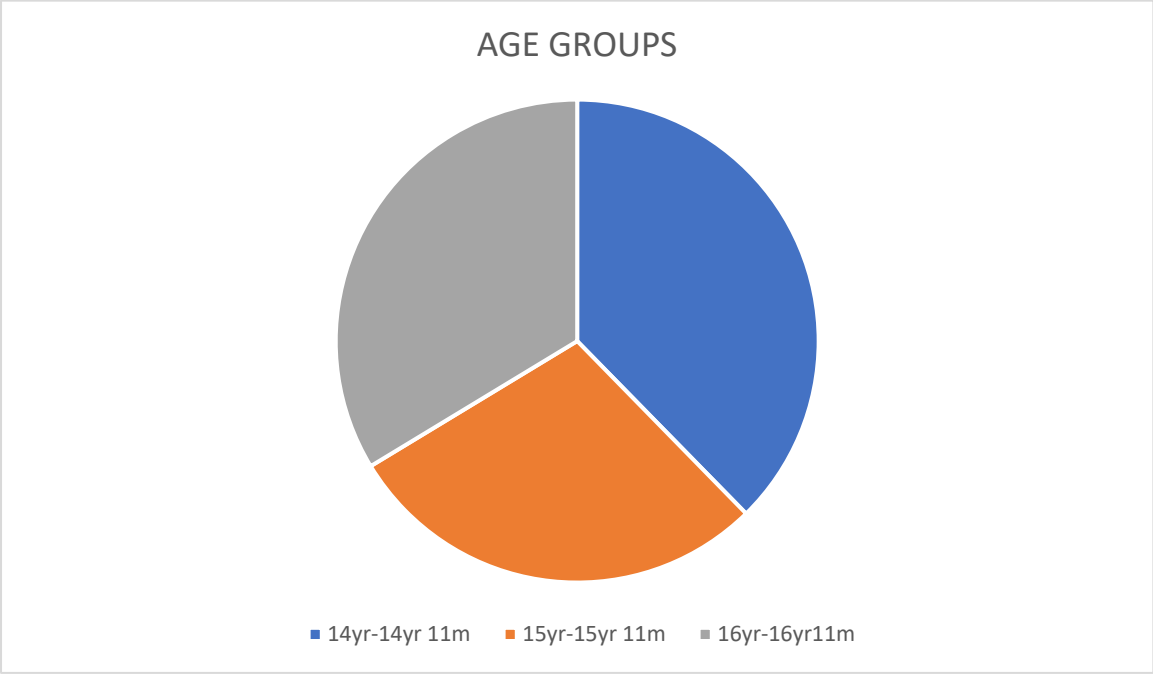

Figure 2: Age distribution of study participants enrolled in the study

The study was aimed to identify depression, anxiety and stress in school going adolescents during covid19 pandemic in 14-17 years old school going children. 37%,28% & 33% of enrolled children were from age group of 14-15 years,15-16 years and 16-17 year respectively.

TABLE 3 Distribution of Depression, stress and anxiety in the study participants

	TOTAL NO.	PERCENTAGE
DEPRESSION	99	33%
ANXIETY	75	24.66%
STRESS	219	73%

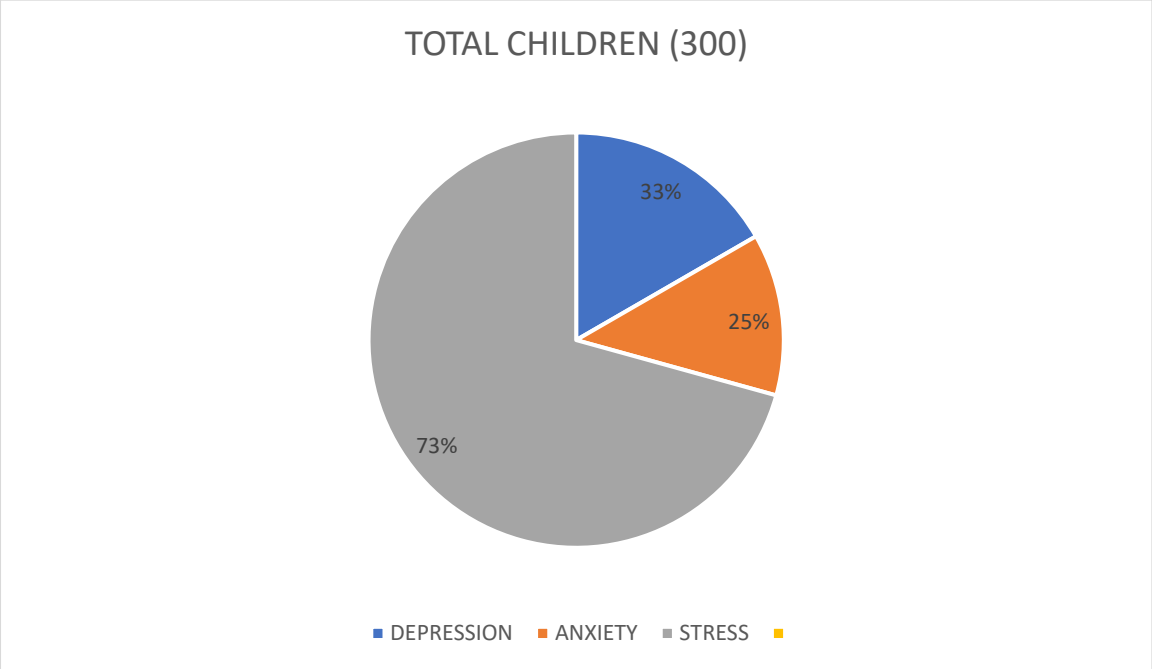

Figure3 Distribution of Depression, anxiety and stress in study population

Table 3 and Figure 3 showed that 73% children had stress, 33% children had Depression and 24.66% children had anxiety. The result itself states that many children had co-existence of depression /anxiety /stress. All the three parameters related to psychological impact were present in very high percentage of children, commonest being stress followed by depression and anxiety.

TABLE 4: Presence of Depression, anxiety and stress in study participants (Gender wise).

PARAMETER	MALE n (152)	Percentage (%)	FEMALE n (148)	Percentage (%)	TOTAL
DEPRESSION	48	31.5%	51	34.4%	99
ANXIETY	32	21%	43	29%	75
STRESS	109	71.7%	110	74.3%	219

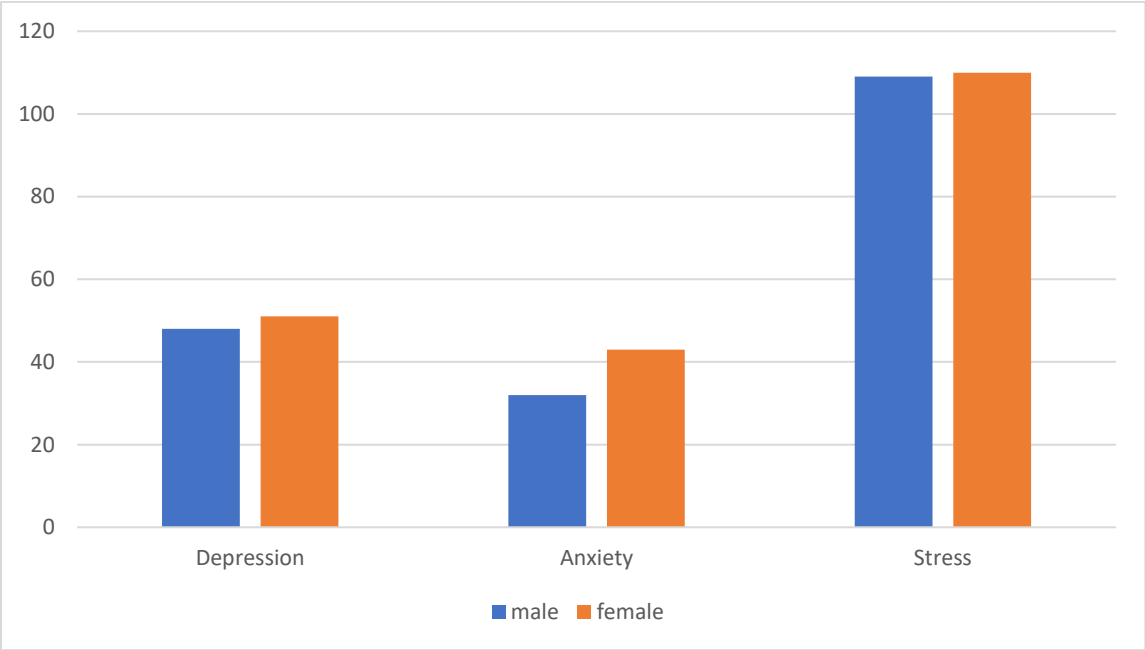

Fig 4 Presence of Anxiety, stress and depression in study participants (Gender wise).

Table 4 and fig 4 showed that 31.5% males and 34.4%% females had depression, 21% males and 29% females had anxiety, 71.7% males and 74.3% females had stress. It says stress is predominantly present in both genders irrespective of age.

TABLE 5: Age and sex wise distribution of Depression, Anxiety and stress.

Age	14yr-14yr11months n =113			15yr-15yr 11months n =86			16yr-16yr 11months n = 101		
	n	Gender	percentage	n	Gender	percentage	n	Gender	percentage
Depression n=99	29	M =12 F = 17	12.1% 17.17%	31	M=15 F=16	15.1% 16.1%	39	M=21 F=18	21.2% 18.1%
Anxiety n=75	24	M = 8 F = 15	10.6% 20%	21	M=9 F=12	12% 16%	30	M=14 F=16	18.6% 21.3%
Stress n=219	72	M = 33 F = 39	15% 17.8%	63	M=30 F=33	13.7% 15%	84	M=46 F=38	21% 17.3%

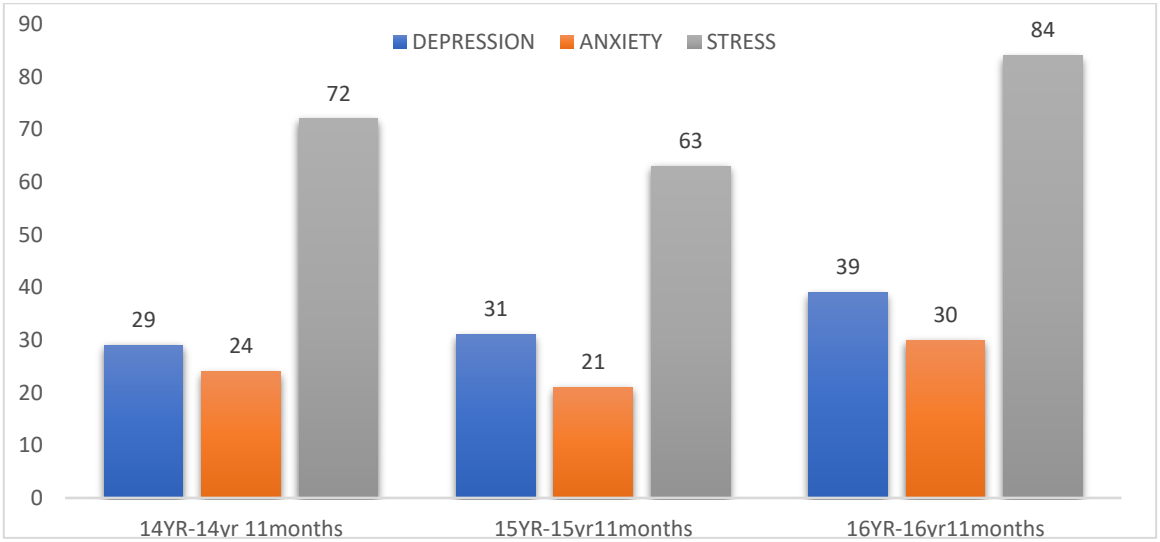

Figure 5. Age and sex wise distribution of depression, anxiety and stress.

Out of 99 children with depression ,12(12.1%) male, 17(17.1%) female children are between 14yr-14yr 11months age.15(15.1%) males,16(16.1%) females are between 15yr-15yr 11months age and 21(21.2%) males, 18(18.1%) females are between 16yr-16yr11months of age. Here depression is distributed almost equal both gender and age wise.

Out of 75 children with anxiety, 8(10.6%) males,15(20%) females are in between 14yr-14yr 11months of age, 9(12%) males 12(16%) females are in between 15yr-15yr11months of age and 14(18.6%)

males,16(21.3%) females are in between 16yr-16yr11months of age. Here anxiety is predominantly seen in females particularly of younger age group.

Out of 219 children with stress, 33(15%) males, 39(17.8%) females are in between 14yr-14yr11months of age, 30(13.7%) males,33(15%) females are in between 15yrs-15yr11months of age and 46(21%) males,38(17.3%) females are in between 16yrs-16yr11months of age. Here stress predominantly seen in males of 16yr-16yrr 11months and females of 14yr-14yr11months of age.

TABLE 6 Level of depression in different age groups.

AGE GROUP	NO DEPRESSION (n)=201	SEX	MILD (n)=81	SEX	MODERATE (n)=18	SEX	SEVERE (n)=0
14yr-14yr 11months n=113	84 (74.3%)	M=41 F=43	29(25.6%)	M=12 F=17	-		-
15yr-15yr 11months n=86	55(63.9%)	M=28 F=27	30 (34.8%)	M=14 F=16	1 (1.1%)	M=1 F=0	-
16yr-16yr 11months n=101	62(61.3%)	M=35 F=27	22(21.7%)	M=13 F=9	17 (16.8%)	M=8 F=9	-
Total (300)	201(67%)	M=104 F=97	81(27%)	M=39 F=42	18(6%)	M=9 F=9	-

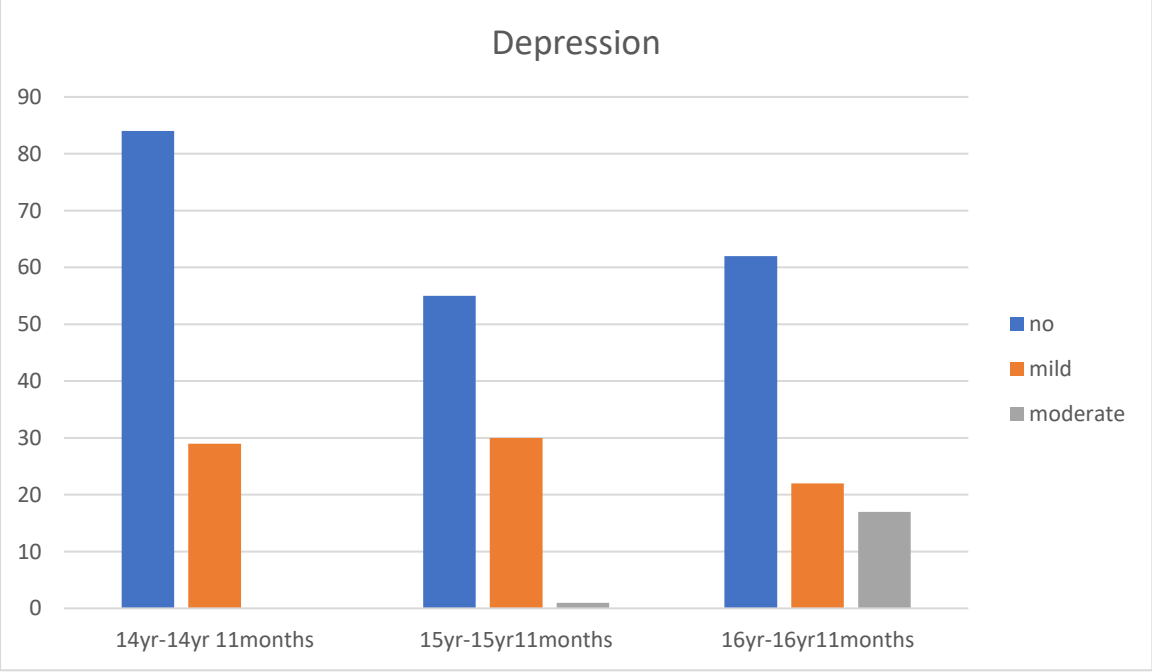

Fig 6 Depression levels in various age groups

201(67%) out of 300 students enrolled had no depression, 81(27%) out of 300 enrolled students had mild depression, 18(6%) out of 300 students enrolled had moderate depression while there are no students with severe depression as per DASS Y scale and there is no significant difference in male: female distribution.

104 out of 152 males (68.4%) had no depression,97 out of 148 females (65.5%) females had no depression. Mild depression was seen in 39 out of 152(25.6%) males, and 42 out of 148 females (28.3%). Moderate depression was observed in 9 out of 152 males (5.9%) and 9 out of 148 females (6%).

Table 7: Level of anxiety in different age groups.

AGE GROUP	NO ANXIETY	SEX	MILD	SEX	MODERATE	SEX	SEVERE
14yr-14yr 11months, n(113)	89(78.7%)	M=44 F=45	24(21.2%)	M=9 F=15	-		-
15yr-15yr 11months, n(86)	65(75.5%)	M=34 F=31	21(24.4%)	M=9 F=12	-		-
16yr-16yr 11months n(101)	71(70.2%)	M=42 F=29	17(16.8%)	M=10 F=7	13(12.8%)	M=4 F=9	-
Total n(300)	225(75%)	M=120 F=105	62(20.6%)	M=28 F=34	13(4.3%)	M=4 F=9	

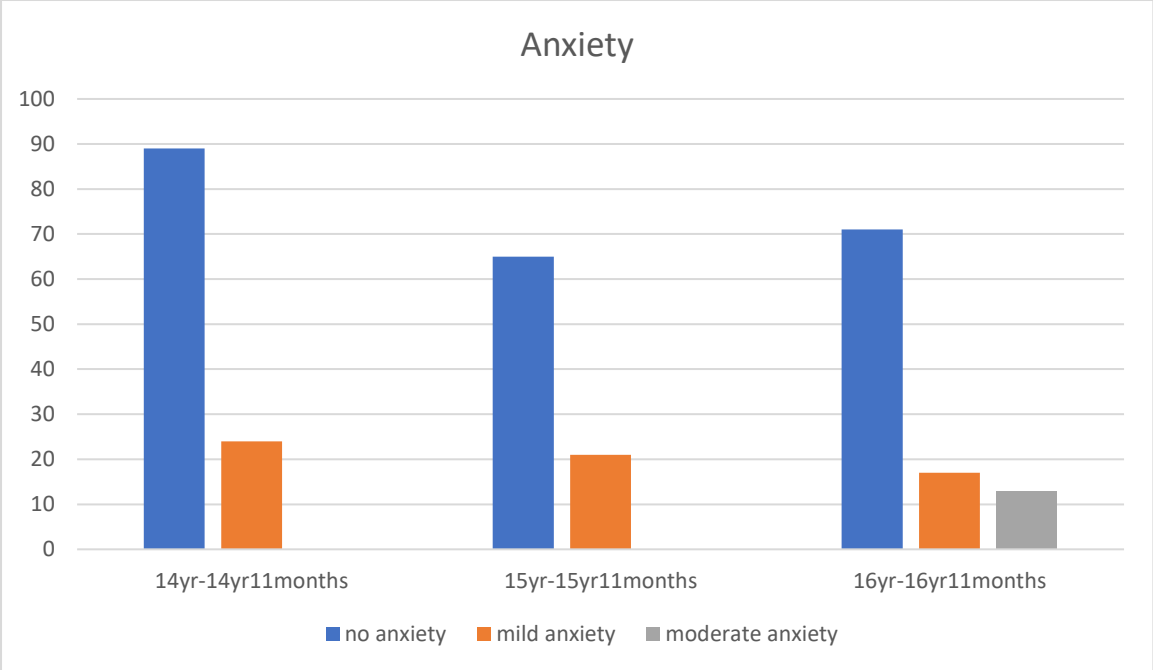

Fig 7 Anxiety levels in different age groups

A total of 225(75%) out of 300 students enrolled had no anxiety, 62(20.6%) out of 300 enrolled students had mild anxiety, and 13(4.3%) out of 300 students enrolled had moderate anxiety and none of the students had severe anxiety as per DASS Y scale.

Out of 152 males enrolled in the study, 120 (78.9%) had no anxiety, 28(18.4%) had mild anxiety and 4(2.6%) had moderate anxiety. Out of 148 females enrolled in the study, 105 (70.9%) had no anxiety, 34(22.9%) had mild anxiety, and 9(6%) had moderate anxiety.

It shows that no significant difference was appreciated in the level of anxiety between males and females.

Table 8: Level of stress in the different age groups.

AGE GROUP	NO STRESS	SEX	MILD	SEX	MODERATE	SEX	SEVERE
14yr-14yr 11months n (113)	41(36.2%)	M=20 F=21	72(71.2%)	M=33 F=39	-		-
15yr-15yr 11months n (86)	23(26.7%)	M=13 F=10	57(66.2%)	M=26 F=31	6(6.9%)	M=4 F=2	-
16yr-16yr 11months n (101)	17(16.8%)	M=10 F=7	39(38.6%)	M=21 F=18	45(44.5%)	M=25 F=20	-
Total, n(300)	81(27%)	M=43 F=38	168 (56%)	M=80 F=88	51(17%)	M=29 F=22	-

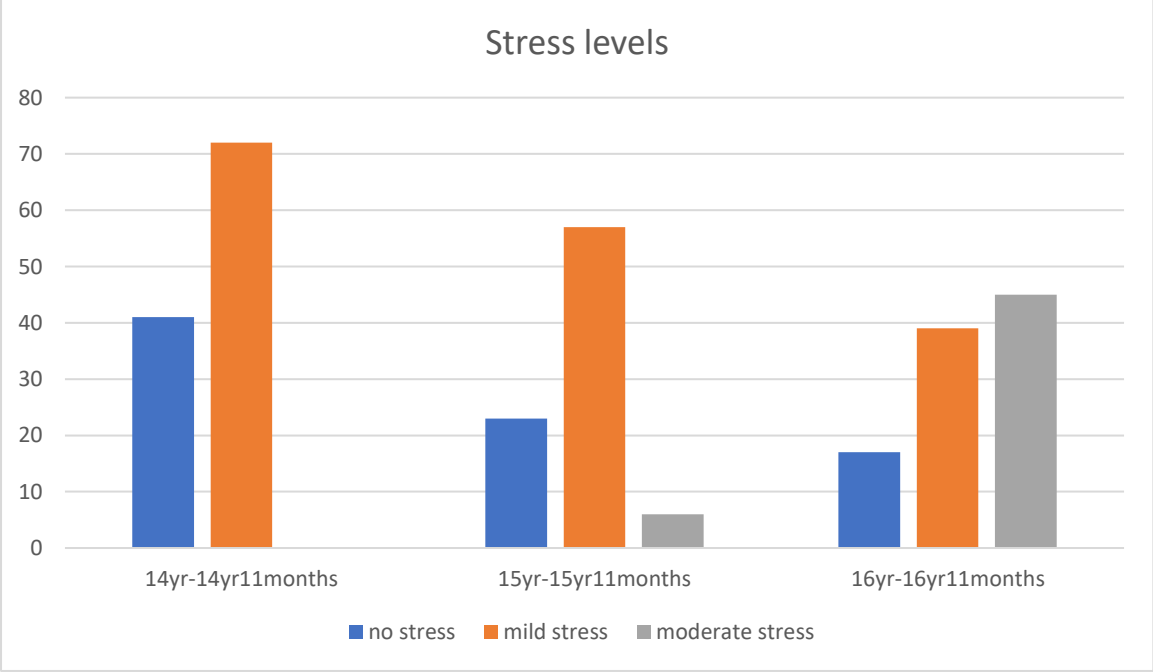

Fig 8 Stress levels in different age groups.

81(27%) out of 300 students enrolled had no stress, 168(56%) out of 300 enrolled students had mild stress, 51(17%) out of 300 students enrolled had moderate stress and no student had severe stress in the study population. It shows mild stress is predominantly present in the study participants.

Out of 152 males enrolled in the study, 43(28.2%) had no stress, 80(52.6%) had mild stress, and 29(19%) had moderate stress. Out of 148 enrolled female children, 38(25.6%) had no stress, 88(59.4%) had mild stress, 22(14.8%) had moderate stress. It shows no significant difference at level of stress in both sexes.

TABLE 9 Distribution of level of knowledge about covid 19 among study participants

Score Grading	Impression on Level of knowledge	Total Children n (300)	Depression n (99)	Anxiety n (75)	Stress n (219)
1-5 (A)	GOOD	0	0	0	0
6-10 (B)	VERY GOOD	100	30(30%)	28(28%)	71(71%)
11-15 (C)	EXCELLENT	200	69(34.5%)	47(23%)	148(74%)

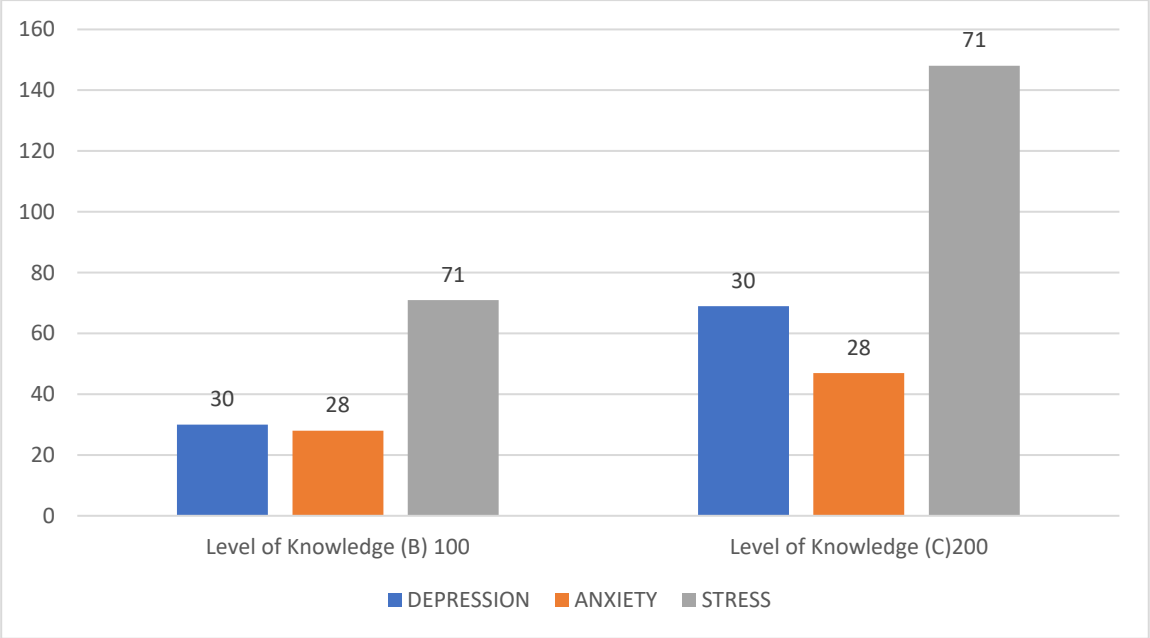

Figure 9 Distribution of level of knowledge about covid 19 among study participants

The above result showed that 100 children had very good and 200 children had excellent knowledge about the covid 19 and safety precautions and it doesn't show much impact on psychological parameters of study participants.

TABLE 10 Distribution of depression, anxiety and stress with academic grades of study participants in previous class

GRADES IN PREVIOUS CLASS	DEPRESSION	ANXIETY	STRESS
A (n=154)	50	37	110
B (n=114)	37	24	90
C (n=32)	12	14	19

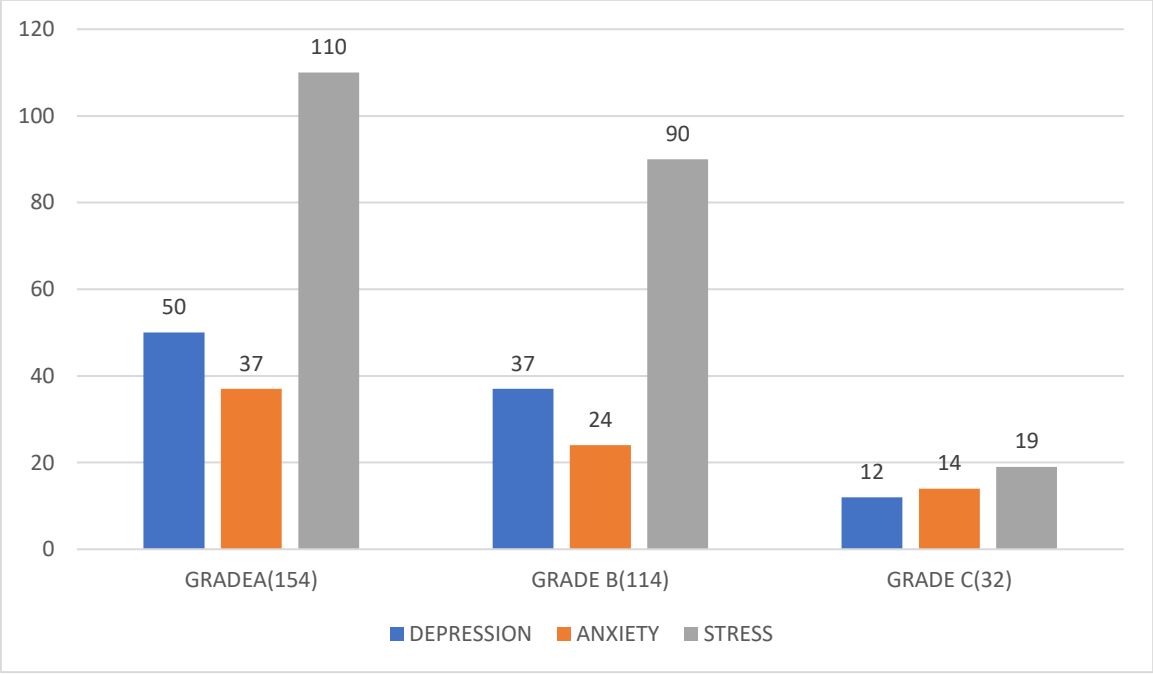

Figure 10 Distribution of stress, anxiety and depression with academic grades of enrolled children in previous class.

Out of 32 children with Grade C in previous class, 19(59.3%) had stress,14(43.2%) had anxiety and 12(37.5%) had depression. Out of 114 children with Grade B, 90(78.9%) had stress, 24(21%) had anxiety and 37(32.4%) had depression. In 154 children with Grade A, 110(71.4%) had stress, 37(24%) had anxiety and 50(32.4%) had depression.

The above result stated that children with Grade C in previous class had more anxiety (43.2%) and less stress (58%) comparatively than Grade A and Grade B students and children with Grade B had more stress (78.9%) compare to the other grade students.

TABLE 11 a, Association of Depression, with death in family during covid 19

Death in family during covid 19	DEPRESSION PRESENT	DEPRESSSION ABSENT	TOTAL	p value	X^2
PRESENT	22	0	22	0.0001	48.2
ABSENT	77	201	278		
TOTAL	99	201	300		

TABLE 11 b, Association of anxiety with death in family during covid 19

Death in family during covid 19	ANXIETY PRESENT	ANXIETY ABSENT	TOTAL	p value	X^2
PRESENT	6	16	22	0.065	0.798
ABSENT	69	209	278		
TOTAL	75	225	300		

Table 11c Association of stress with death in family during covid 19

Death in family during covid 19	STRESS PRESENT	STRESS ABSENT	TOTAL	p value	X^2
PRESENT	17	5	22	0.22	0.639
ABSENT	202	76	278		
TOTAL	219	81	300		

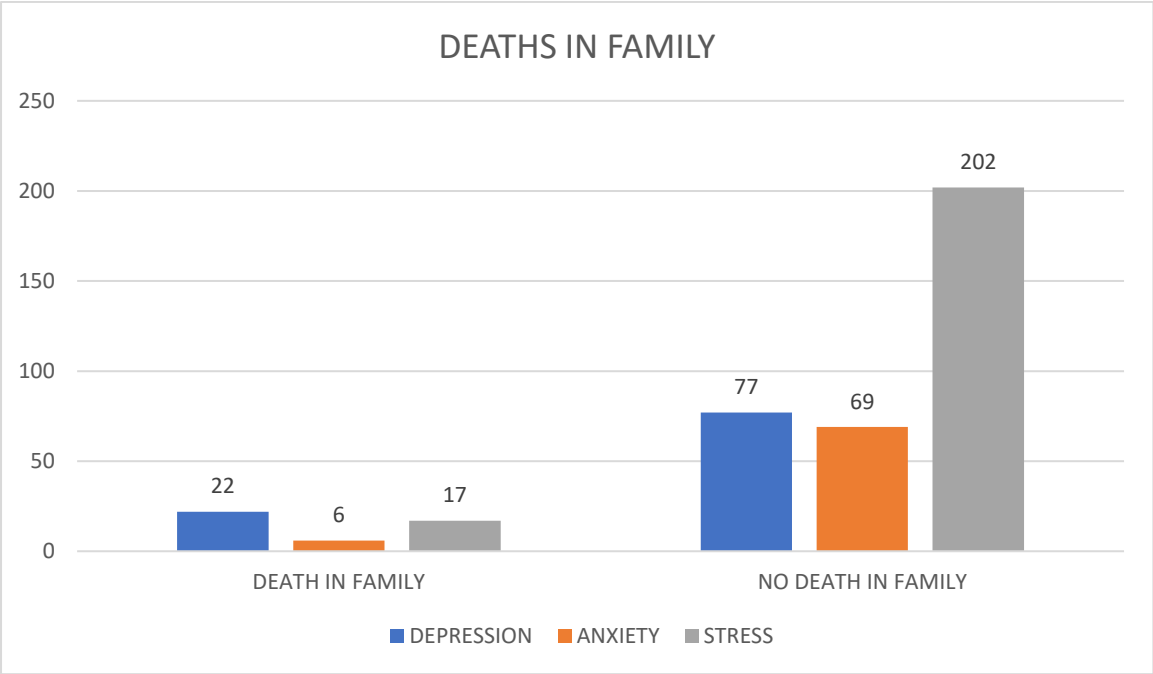

Figure 11 Association of studied psychological para meters (Depression, anxiety and stress) with death in family during covid 19.

Table 11a,11b and 11c clearly demonstrated that death in the family during covid19 had significant impact on children and 100% of all children with that history were depressed (p=0.0001).

77.2% students were stressed after death of family member due to covid 19 infection but the p value (p=0.22) was not significant and 27.2% students demonstrated anxiety with history of death in family due to covid19 but p value(p=0.065) was not significant.

TABLE 12 Distribution of depression, anxiety and stress in children with family member infected with covid 19

	TOTAL n (300)	**DEPRESSION n (99)**	**ANXIETY n (75)**	**STRESS n (219)**
Family member infected with covid19	212	76 (35.8%)	60(28.3%)	149(70.2%)
Family member not infected with covid19	88	23 (26.1%)	15(17%)	70(79.5%)

TABLE 12a

Association of Depression in children with family infected with covid 19

Family infected with covid 19	DEPRESSION PRESENT	DEPRESSION ABSENT	TOTAL	X^2	p value
PRESENT	76	136	212	2.653	0.1033
ABSENT	23	65	88		
	99	201	300		

TABLE 12 b Association of anxiety in children with family infected with covid 19

Family infected with covid 19	ANXIETY PRESENT	ANXIETY ABSENT	TOTAL	X^2	p value
PRESENT	60	152	212	4.202	0.0404
ABSENT	15	73	88		
	75	225	300		

TABLE 12 c Association of stress in children with family infected with covid 19

Family infected with covid 19	STRESS PRESENT	STRESS ABSENT	TOTAL	X^2	p value
PRESENT	149	63	212	2.707	0.099
ABSENT	70	18	88		
	219	81	300		

Table 12a, 12b, 12c showed that 212 children suffering with depression, anxiety and stress where there is a family member infected with covid 19, n (212) and compared with 88 children where there is no infection (covid 19) in the family member.

Among children with history of family member infected with covid19, 76(35.8%) had depression,60(28.3%) had anxiety and 149(70.2%) had stress. How ever the association of history of family member being infected with covid19 was not significant for depression(p=0.10), and stress(p=0.099), but it is significant for anxiety (p=0.0404).

TABLE 13 a, Association of depression with covid 19 infected participants in the study

Study child infected with covid 19	DEPRESSION PRESENT	DEPRESSION ABSENT	TOTAL	X^2	p value
PRESENT n (172)	63 (36.6%)	109 (63.3%)	172	2.4	0.1214
ABSENT n (128)	36 (28.1%)	92 (71.8%)	128		

TABLE 13b Association of anxiety with covid 19 infected participants in the study

Study child infected with covid 19	ANXIETY PRESENT	ANXIETY ABSENT	TOTAL	X^2	p value
PRESENT n (172)	48 (27.9%)	124 (72%)	172	1.817	0.1777
ABSENT n (128)	27 (21%)	101 (78.9%)	128		

TABLE 13c Association of stress with covid 19 infected participants in the study

Study child with covid 19	STRESS PRESENT	STRESS ABSENT	TOTAL	X^2	p value
Present N (172)	127 (73.8%)	45 (26.1%)	172	0.705	0.143
Absent, n (128)	92 (71.8%)	36 (28.1%)	128		

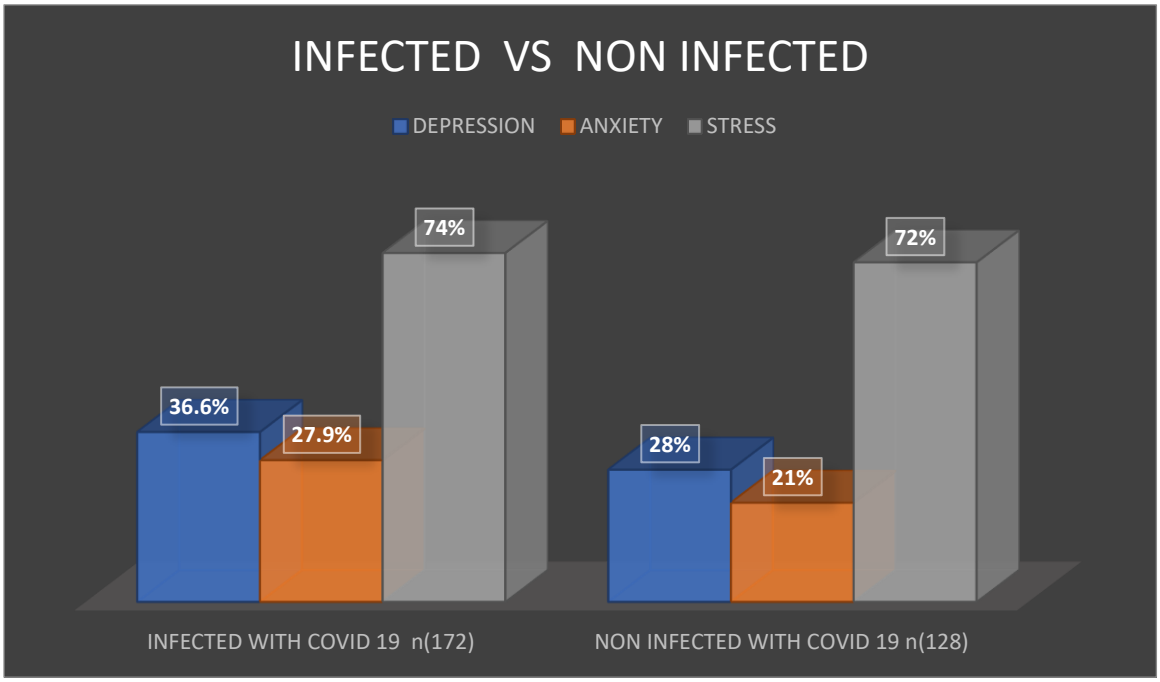

Figure 12

Table 13a, 13b, 13c and Figure 12 showed the association between children with covid infection with psychological parameters (depression, anxiety and stress.)

The above result stated that children infected with covid 19 had more Depression (36.6%) and Anxiety (27.9%) than the children not infected with covid 19 and stress is profoundly higher in both the groups. But there is no significant association of factor (infected with covid 19) with depression (p=0.12), anxiety (p=0.18) and stress (p=0.14)

TABLE 14a Association of depression with covid infected family and study child

Study child and family infected with covid 19	DEPRESSION PRESENT	DEPRESSION ABSENT	TOTAL	X^2	p value
PRESENT	21	40	61	6.1	0.013
ABSENT	4	31	35		
	25	71	96		

TABLE 14 b Association of anxiety with family and child infected with covid19

Study child and family infected with covid 19	ANXIETY PRESENT	ANXIETY ABSENT	TOTAL	X^2	p value
PRESENT	16	45	61	6.14	0.0132
ABSENT	2	33	35		
	18	78	96		

TABLE 14 c Association of stress with family and child infected with covid19

Study child and family infected with covid 19	STRESS PRESENT	STRESS ABSENT	TOTAL	X^2	p value
PRESENT	43	18	61	0.498	0.4803
ABSENT	27	8	35		
	70	26	96		

There are 61 enrolled students with history of infection with covid19 to both study child and family member. It shows the association between above positive history and depression was found to be significant (p=0.013) and was also significantly associated with anxiety (p=0.0132) but not significantly associated with stress(p=0.48).

DISCUSSION

The present study titled "To determine the impact of covid 19 on psychological behaviour in school going adolescents (14-17yrs) age group" was conducted in the department of paediatrics, Santosh hospital, Ghaziabad to assess the presence of depression, stress and anxiety in the adolescent children between 14-17years of age.

The school chosen were privately owned senior secondary school near the hospital. Consent was taken from the principal of the school, students and parents.

The data collection was done through 3 questionnaires highlighting basic profile, knowledge about covid19 and assessment by DASS Y scale for anxiety, depression and stress. The knowledge questionnaire was indigenously prepared and consisted of 15 questions with answers in Yes/No. The scoring was done based on yes and categorization was based on the score.

DASS Y scale was chosen since it is a validated tool for the assessment of the 3 parameters which the study was focusing on and also it is a simple test containing 21 questions and it is easy to administer and easily understandable by the students.

The study was focused in the age group of 14- 17years only since adolescent age is the time when the impact is maximum due to their independent thinking and rationalization.

In the other studies, Duan et al the study population was very under and included 7-18years of age group (3). Chen F et al also included a wide range of 6-15years age group (4). Tang et al included primary and secondary school children from China (5). Qi et al included a wide range between 11-20 years (6). However, one study conducted by Ellis et al in 2020 which included study children of age group between 14-18years (9).

In the present study a restricted age group of 14-17years was included for the purpose of similarity in their thought process.

A total of 300 students were enrolled as calculated by sample size. This number is appropriate from the study point of view but the available literature show's that survey-based study included students number ranging thousand to few thousands

Males and females were almost equally distributed in our study with 152 males, and 148 females (1:1) ratio. Also, the students were distributed in the different age groups with 113 students between 14-15yrs age (37.6%0, 86 students were between 15-16years of age (28.6%), and 101 students were between 16-17yrs of age (38.6%).

Depression:

Depression was prevalent among 99 students (33%) of the study population as per DASS Y scale .31.5% of the male study group(n=152) were affected by depression while 34.4% of females (n=148) were depressed.

In the study 81 students (27%) had mild depression, 18 (6%) had moderate depression and no student was detected to have severe depression. The male: female distribution with respective to depression was similar. In them 39 males,42females had mild depression and 9males, 9females had moderate depression.

There was significant association between depression and death in the family due to covid19 infection and 100% children with history of death in the family had depression (p=0.0001). However, there was no significant association of depression with family member infected with covid 19 (p=0.10) or self-infection (p=0.12).

However, a significant association was found (p=0.013) when there was history of covid infection both in family and self.

Chen F in his study (4) had found depression in 11.78% participants and 6.56% had both depression and anxiety. In the study by Tang et al (5) depression was prevalent in 19.7% study population. The study conducted by Tee at al (11) also revealed that 16.9% participants had moderate to severe depression.

The difference between present study and comparative studies could be because of the test used and inclusion of study participants with a very wide range of age group. As per this study the age group of 14-17 years is the most likely to be affected.

Anxiety:

Anxiety was prevalent among 75 students which is 25% of the study population as per DASS Y scale. 32(21%) out of 152 males recruited were affected by anxiety while 43(29%) out of 148 females recruited were affected by anxiety.

62 students (20.6%) had mild anxiety; 13 students (4.3%) had moderate anxiety but severe anxiety was not found in any participant. The male: female ratio with respective to anxiety was almost equal. 28 males, 34 females had mild anxiety. However, moderate anxiety was present in 9 females and 4 males. Moderate anxiety was noted only in the age group between 16yr-16yr 11months. In the present study no significant association was detected between anxiety and death of family member due to covid19(p=0.06). Similarly, no significant association was detected between anxiety and history of family member infected with Covid 19 and no significant association could be established between anxiety and participant infected with covid 19(p=0.17).

However, significant association was established between anxiety in the study population and history of infection in family and self(p=0.013).

In the available literature, Duan et al (3) demonstrated anxiety in 29.27 ± 19.79% cases. Chen F et al (4) showed the anxiety in 18.92% cases and 6.86% of his study population had both anxiety and depression. Tang et al (5) also showed anxiety in 24.9% cases. In their study the tool used was GAD -7 which was different from the present study.

McElroy et al (7) demonstrated that anxiety during covid19 outbreak is basically classified as

Disease anxiety and consequence anxiety. In another study by Tee et al (11) 28.8% study population had moderate to severe anxiety.

Stress:

As per DASS Y scale, stress was prevalent among 219 (73%) students of the study participants. In the study 109(71.7%) of total male study group (n=152) were affected with stress while 110(74.3%) of the total female study group (n=148) were affected by stress.

In the study 168(56%) students had mild stress, 51(17%) had moderate stress but severe stress was not detected in any study participant. The male: female distribution for stress was almost similar as 80males, 88 females had mild stress and 29 male, 22 females had moderate stress.

In this study no significant association was found between stress and death of family member due to covid19 (p=0.22). In the same way no significant association was detected between history of family member infected with covid 19 and stress (p=0.09). Similarly, no significant association was found between stress and the participant infected with covid19 (p=0.14). and in the similar manner no significant association was detected between stress in study participant and history of infection in both family and self(p=0.48).

Out of the available literatures, Tan et al (5) demonstrated that 15.2% participants had stress in his study. Ellis et al in his study demonstrated a positive significant corelation between physical activity and decreased stress and depression in the study participants (9). Tee et al in his study demonstrated that 13.4% study participants had moderate to severe stress (11). Zhang et al in his cross-sectional study demonstrated that 9.4% high school children had stress (17). The difference in the level of stress between different studies is because of the tool used to measure is different and also the sample size.

CONCLUSIONS

At present this study was aimed on identifying Depression, Anxiety and stress in school going children during covid 19 pandemic and to find association of certain factors that might show their effect on mental health of the children .Association between history of deaths in the family during pandemic, any family member infected with covid 19, with the depression , anxiety and stress was studied between the two groups using chi square test using 95% confidence interval , and level of significance 5% to interpret the statistical significance.(17).

In the present study out of 300 children there are 152 males and 148 females. In them 73% children had stress, 33% had depression and 25% had anxiety.

Based on gender, female children had relatively more anxiety (29%) than male (21%).

As per age group in the study population stress is mainly present followed by depression and anxiety and their impact increased with age group.

In this study 27% had mild depression,6% had moderate depression, 20.3% had mild anxiety, 4.3% had moderate anxiety, 56% had mild stress, 17% had moderate stress. The result also stated that no single child has severe depression/anxiety/stress.

Children with Death in family during covid19 had significant depression (100%) compared with the no death in family and this variable (Death in family) is highly significant with p (0.0001)

Many children in this age group had very good knowledge about covid 19 and this doesn't show any impact on the mental health of the children.

Children with family members infected with covid 19 had significant anxiety (28.3%) compared to children with no infected family members (17%) and this variable (Family infected with covid 19) is highly significant showing its impact with p (0.0404)

Children infected with covid19 had more depression (36%) and anxiety (30%) than children not infected with covid 19while stress amount is comparable in both groups while both self and family infected persons had significant depression (34.4%) and anxiety (26.2%) compare to children who themselves and the family not infected where depression is (11.4%) and anxiety is (5%) and this association is highly significant for both Depression with p (0.013) and anxiety with p (0.013)

Many studies demonstrated that physical activity, developing new skills at home plays a prominent role to decrease depression, anxiety and stress as they work as a positive managing mechanism that keep the child busy and make them worry less about the covid 19 pandemic (20).

SUMMARY

This cross-sectional study on the specific adolescent age group(14-17yrs) had shown that Stress is predominantly seen in children followed by depression and anxiety. Out of them anxiety is seen more in females and in children where family members infected with covid 19 and depression is seen predominantly in children where there is a death in the family (21). In cases where the infection present both in child and in the family, there is significant depression and anxiety than the children and family who hadn't infected Children of this age group had very good knowledge about covid 19 and safety precautions to be taken against it but it doesn't have much impact on the mental health of children particularly of this age group. (22)

Many children are showing enthusiasm to know more about covid 19 and there are many non-governmental and other organization where there provide psychiatric tele consultancy , information about covid 19 and government advised to start online classes to keep children busy in their work and not to get lag in their academics .(23)After started going to school (post lock down) these symptoms gradually decreased as their minds get occupied with many things other than getting worried and feeling depressed.(24)

STUDY STRENGTHS:

- Easy to collect data from the children in a simple questionnaire format
- Time conserving study as data is collected at a single point of time and not requiring any follow up.
- Using single scale to identify three variables depression, anxiety and stress in children at a time.

Limitations:

- The sample size is small as getting consent become a big concern from the parents.
- Many variables like physical activity, adjustment of children to school life post pandemic or lockdown, standard measures to decrease the levels of depression and anxiety. (25)
- There can be a slight chance of recall bias as the child need to recall from the lockdown time

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ANNEXURE

PROFORMA

SANTOSH MEDICAL COLLEGE & HOSPITAL

PERSONAL IDENTIFICATION DATA

Volunteer No:

Name:

Age:

Gender:

Address:

School Name:

Class:

Number of family members:

Number of Siblings living in the Home:

Profession of parents:
Mother -
Father –

History of any Mental Health issue:

History of Mental illness in Any family Member:

Physical health status:
(Filling by the doctor)

QUESTIONNAIRE TO ASSESS LEVEL OF KNOWLEDGE ABOUT COVID19 PANDEMIC AND SAFETY PRECAUTIONS

1)Have you heard about covid 19 yes / no

2)Did you contract this infection during pandemic covid 19 yes / no

3)Do you know how the covid 19 spread and what are its symptoms when infected Yes / no

4)Have you met any outside family member during lockdown yes / no

5)Is there any family member affected with Covid 19 yes / no

6)Do you Know how to sanitize your hands yes / no

7)Can you demonstrate how to sanitize hands yes / no

8)Did you avoid social gatherings during covid 19 Pandemic yes / no

9)Do you have fearfullness/ nervousness yes / no

10)Do you use face mask while going out yes / no

11)Covering mouth while coughing and sneezing yes / no

12)Did you avoid sharing personal items with the sick person in the family yes / no

13) Is the vaccine for covid-19 available in india Yes / no

14)Can you recover completey after infected with covid 19 virus Yes / no

15)Would you like to know more about the disease Yes / no

SANTOSH MEDICAL COLLEGE & HOSPITAL

CONSENT FORM

I …… S/O, D/O ……R/O

…….. have been explained by Dr.Naveen Kumar

about the implications and risks of the study. I volunteer to take part in the study titled

"**To know the impact of covid 19 on psychological behaviour in school going adolescent (14-17 yr age group)**" I have been explained the purpose of the study to my satisfaction.

I hereby agree to participate in the study.

Signature of volunteer/guardian

Signature of Investigator

Signature of Witness Phone No.

SANTOSH MEDICAL COLLEGE & HOSPITAL

Informed Consent Form

I …… son/daughter/wife of……. resident of ……. give my full and voluntary consent to be included as a subject in the study "**To know the impact of covid 19 on psychological behaviour in school going adolescents (14-17yr age group)**" that the study will be conducted in Santosh Hospital. I have been explained, in my own language, and to my full satisfaction, the aim and nature of the study and the risks. I have also been explained that my confidentiality will be maintained, and all the investigations/interventions will be carried out only after my consent is obtained. I am aware of my right to withdraw from the study at any time without having to give a reason, and without incurring any fees, and without losing access to benefits related to normal medical care .My project does not involve any risk.

Thumb Impression/Signature

Name of the Participant

Address of Participant Phone No.-

Date & Time

Dr NAVEEN KUMAR
Phone No.-
P.G.Student –MD Paediatrics
Santosh Hospital, Ghaziabad

सहमतिपत्र

मैं_____ पुत्र / पुत्री /धर्मपत्नी _____ निवासी_____ को डॉक्टर Naveen kumar Nelakurthi द्वारा इस शोधकार्य के सम्बन्ध में “” होने वाली हानि के बारे में समझा दिया है और मैं इच्छापूर्वक इस शोधकार्य जिसका शीर्षक है और इस शोधकार्य के बारे में समझा दिया गया है। अतः मैं उपरोक्त विषय पर शोध कार्य में हिस्सा लेने के लिए सहमत हूँ। मुझे समझा दिया गया है की किसी प्रतिकूल प्रतिक्रिया के होने पर इलाज और मुआवजे की ज़िम्मेदारी जांच अधिकारी की है। मेरी सभी जानकारी गुप्त रखी जाएगी और मुझे किसी भी समय यह जांच छोड़ने का पूरा अधिकार है। मुझे समझा दिया गया है की इस जांच के दौरान मुझे कोई खतरा नहीं है।

हस्ताक्षर

जांचअधिकारीकेहस्ताक्षर

गवाह

दूरभाषनंबर

दिनांक

MASTER CHART

SNO	AGE	GENDER	CLASS OF STUDY	GRADE OF MARKS IN PREVIOUS CLASS	FAMILY INFECTED WITH COVID 19	DEATH IN FAMILY DURING COVID PANDEMIC	HAVE YOU INFECTED WITH COVID 19	DEPRESSION SCORE	ANXIETY SCORE	STRESS SCORE	LEVEL OF KNOWLEDGE ABOUT COVID 19
1	16	1	3	1	1	2	1	0	3	4	10
2	14	1	1	1	1	2	2	0	0	4	9

3	15.2	2	2	1	2	2	1	2	4	3	10
4	16	2	3	1	1	2	1	3	0	2	11
5	14.2	1	1	3	1	2	1	1	I	3	9
6	15	1	2	1	2	2	2	0	0	3	13
7	14	2	1	1	1	2	1	3	1	2	8
8	16	1	3	2	1	2	2	3	0	5	12
9	16.3	1	3	2	2	1	1	2	0	7	13
10	14	2	1	1	1	2	2	0	4	2	11
11	14	1	1	1	1	2	1	0	0	3	10
12	15	2	2	2	2	2	1	0	3	8	10
13	16	1	3	1	1	2	1	6	0	0	13
14	14	1	1	2	1	2	2	2	0	1	10
15	15.4	1	2	2	2	2	1	0	0	4	12
16	14	2	1	2	1	2	1	0	0	1	9
17	14.4	2	1	1	1	2	2	4	0	0	12
18	16	1	3	1	2	2	1	0	0	10	12
19	16	2	3	2	1	1	1	8	8	7	15
20	14	1	1	3	1	2	2	0	3	0	7
21	15	1	2	1	1	2	2	0	0	4	11
22	15	2	2	1	2	2	1	6	0	7	12
23	14	2	1	2	1	2	2	1	0	1	7
24	16.8	1	3	2	1	2	1	0	9	8	14
25	14	1	1	1	2	2	2	0	0	1	11
26	14.6	2	1	1	1	2	2	2	0	0	9
27	14	1	1	2	1	2	1	0	0	1	8
28	16	1	3	2	1	2	1	4	0	0	11
29	14	2	1	2	1	2	1	0	0	3	9
30	14	1	1	1	1	2	2	0	0	0	8
31	16.2	1	3	2	1	2	1	0	6	9	10
32	14	2	1	1	2	2	1	0	0	0	13
33	14.2	2	1	3	1	1	2	2	0	0	9
34	16	2	3	1	2	2	2	0	0	7	14
35	14	1	1	2	1	2	2	3	1	2	10
36	15.7	1	2	2	1	2	1	4	2	7	13
37	14	2	1	1	2	2	2	0	0	0	12
38	15.2	2	2	2	1	2	1	1	0	7	13
39	14	1	1	1	1	2	1	0	0	0	10
40	16	2	3	2	1	2	2	7	9	0	14
41	15	1	2	1	1	2	2	7	0	6	12
42	14.4	2	1	2	1	2	1	0	1	4	10
43	14.8	1	1	2	1	2	2	0	0	3	12
44	16	1	3	3	1	2	2	1	0	0	9
45	15.3	2	2	1	1	1	2	4	3	1	1
46	14.3	2	1	1	2	2	2	0	0	0	11
47	14.4	1	1	3	1	2	1	0	2	0	6
48	15	2	2	3	1	2	1	0	0	0	11
49	15.2	1	2	2	1	2	1	0	0	6	15
50	16.4	2	3	1	2	2	2	0	0	8	15
51	14	1	1	1	1	2	1	0	0	3	7

52	15.3	2	2	1	1	2	1	0	0	5	14
53	15	1	2	1	2	1	1	5	0	7	15
54	14	1	1	1	1	2	2	2	0	2	9
55	16	2	3	2	1	2	1	9	0	10	15
56	14	2	1	2	1	2	1	0	0	4	10
57	15	1	2	1	1	2	2	0	5	0	14
58	14.2	1	1	2	1	2	1	1	0	0	11
59	14	2	1	1	2	2	2	0	0	3	10
60	15.2	2	2	2	1	2	2	0	6	4	14
61	14	2	1	1	1	2	1	0	4	0	12
62	14	1	1	3	2	2	1	0	3	0	8
63	15	1	2	2	1	2	1	8	0	0	12
64	14	1	1	1	1	2	1	0	0	2	11
65	14	1	1	2	2	2	2	0	0	5	10
66	15	2	2	2	1	1	1	6	0	1	12
67	14.6	1	1	1	1	2	1	0	0	0	8
68	14	1	1	2	2	2	2	0	0	3	13
69	14.4	2	1	1	1	2	1	0	0	3	9
70	16	2	3	1	1	2	1	0	0	8	14
71	14	1	1	2	2	2	2	0	0	0	9
72	14	2	1	1	1	2	2	0	2	5	10
73	14	1	1	1	1	2	1	0	1	0	10
74	15.2	1	2	1	1	2	2	0	0	5	13
75	14	2	1	2	1	2	1	0	0	3	14
76	15.5	2	2	1	1	2	1	0	0	0	10
77	14	1	1	3	2	2	1	2	0	0	9
78	16	1	3	2	1	2	2	0	0	9	12
79	15	2	2	1	1	2	1	0	0	3	13
80	14	1	1	1	1	2	2	0	0	0	9
81	14	1	1	2	2	2	1	0	2	2	8
82	14.2	2	1	1	1	2	2	0	0	2	11
83	15	1	2	2	1	1	1	5	0	7	13
84	14.6	1	1	2	1	2	1	0	0	0	13
85	15	2	2	1	2	2	2	2	0	5	14
86	14	2	1	1	1	2	1	0	0	3	12
87	15	1	2	2	2	2	1	0	0	4	13
88	16.8	1	3	2	1	2	2	0	0	8	13
89	15.8	2	2	3	1	2	1	0	0	7	8
90	15	1	2	1	1	1	1	4	4	7	15
91	16	1	3	1	1	2	2	3	6	6	15
92	15	1	2	2	2	2	1	0	2	0	14
93	14	2	1	1	1	2	1	3	0	0	14
94	16	1	3	3	1	1	2	9	0	0	10
95	16	1	3	2	1	2	1	0	0	8	15
96	14.4	2	1	1	2	2	2	0	0	0	15
97	15	2	2	1	1	2	1	4	3	7	12
98	15	2	2	1	1	2	1	0	4	0	11
99	15	1	2	1	1	2	1	0	5	0	13
100	15	2	2	1	2	2	2	0	0	4	14

101	16.4	1	3	1	1	2	1	0	0	8	13
102	14.8	2	1	2	2	2	2	0	0	4	12
103	16	1	3	1	1	2	1	8	9	9	14
104	14	2	1	3	1	2	1	1	5	6	7
105	15	1	2	2	2	2	2	3	0	9	8
106	15.2	1	2	2	1	2	1	0	0	2	13
107	15	2	2	1	1	1	2	4	0	5	15
108	16	1	3	2	1	2	1	0	0	9	14
109	15.8	1	2	1	1	2	2	4	0	0	12
110	15.9	2	2	2	2	2	2	0	2	3	13
111	16	1	3	1	1	2	1	7	5	2	15
112	14	2	1	1	1	2	2	0	0	3	12
113	15.3	1	2	2	2	2	1	3	0	8	12
114	15	2	2	3	1	2	1	0	3	9	7
115	14.3	2	1	2	2	2	2	3	0	0	10
116	14.5	1	1	1	1	2	1	0	2	0	13
117	16.2	2	3	3	1	2	1	0	7	11	9
118	15	1	2	1	1	2	2	0	3	6	14
119	16.3	1	3	2	1	2	1	0	0	6	12
120	15	2	2	2	1	2	1	0	0	4	8
121	14	1	1	3	2	2	2	0	0	3	8
122	14.7	2	1	1	1	2	1	0	0	0	14
123	16.8	1	3	2	1	2	2	0	0	11	13
124	15	1	2	1	2	2	2	0	0	0	12
125	15.3	2	2	1	1	2	1	7	0	0	12
126	14.2	2	1	1	1	2	1	0	3	0	9
127	14	1	1	2	2	2	2	1	0	0	11
128	16.8	1	3	3	1	2	1	0	8	0	8
129	15	1	2	2	1	1	1	2	0	4	11
130	15.2	2	2	1	1	2	2	0	1	5	12
131	16.3	2	3	2	1	2	1	0	0	8	12
132	14	2	1	1	1	2	1	0	0	4	10
133	16	1	3	1	2	2	2	0	0	2	13
134	16.7	1	3	1	1	2	1	7	0	6	15
135	14	2	1	1	1	2	1	0	1	5	10
136	16.4	2	3	1	1	2	2	0	5	6	15
137	14	1	1	3	1	2	1	0	0	2	9
138	16.8	2	3	3	1	2	2	4	0	0	10
139	15.2	1	2	3	2	2	1	6	2	0	9
140	15	2	2	1	1	2	1	5	0	0	13
141	16.2	1	3	2	1	2	2	0	0	10	13
142	14.5	2	1	2	2	2	1	0	0	4	12
143	16.9	1	3	2	1	1	1	6	4	9	11
144	16.3	1	3	2	1	2	2	0	0	8	13
145	16.10	2	3	1	2	2	2	0	0	5	14
146	14	1	1	1	1	2	1	0	0	4	13
147	14.7	2	1	3	1	2	1	0	4	0	7
148	16	1	3	2	1	2	2	0	0	0	14
149	16.3	1	3	1	2	2	1	5	0	3	13

150	16.8	2	3	2	1	2	2	0	9	8	11
151	16.2	2	3	3	2	2	1	6	0	12	10
152	14	2	1	1	1	2	1	2	3	0	12
153	16.5	1	3	2	1	2	1	0	0	9	14
154	14	1	1	1	1	2	1	0	0	0	12
155	16	2	3	1	1	2	2	0	8	0	13
156	15	1	2	1	2	2	1	0	0	3	14
157	16.8	1	3	2	1	2	1	9	0	8	11
158	14.3	2	1	1	1	2	1	3	4	0	12
159	14	1	1	2	2	2	1	0	0	0	13
160	15	2	2	2	1	2	2	0	0	3	15
161	16.3	1	3	2	2	2	1	0	5	7	13
162	16	1	3	1	2	1	1	9	0	5	11
163	14.8	2	1	1	1	2	2	0	0	6	9
164	16	2	3	2	2	2	1	8	0	4	12
165	16.4	2	3	3	1	2	2	0	10	3	11
166	15.2	1	2	2	1	2	1	0	0	5	13
167	15.6	2	2	1	2	2	1	4	0	3	15
168	14.7	1	1	2	1	2	1	0	0	0	14
169	16	2	3	1	1	2	1	11	0	7	15
170	16.2	1	3	3	1	2	2	0	0	4	7
171	14.2	2	1	1	2	2	1	0	0	5	10
172	15	1	2	2	1	2	2	0	0	4	9
173	14	2	1	2	2	2	1	0	0	3	10
174	15	2	2	2	2	2	1	6	0	5	12
175	14.3	1	1	2	1	2	1	0	0	2	9
176	16.6	2	3	3	1	2	2	0	0	5	9
177	16.3	1	3	1	1	2	1	7	0	10	14
178	16.2	2	3	1	1	1	1	9	4	2	15
179	15	1	2	1	1	2	2	3	0	0	10
180	15.4	2	2	3	2	2	1	0	4	1	8
181	14	1	1	1	1	2	1	3	0	5	12
182	14.2	2	1	1	1	2	2	1	0	0	11
183	15.3	1	2	2	1	2	1	0	0	3	10
184	16	2	3	1	2	2	1	0	0	10	14
185	14	1	1	1	1	2	2	0	2	3	12
186	15	1	2	1	1	2	1	6	0	0	13
187	14	2	1	1	1	2	2	0	0	2	6
188	16.3	2	3	1	2	2	1	0	0	6	15
189	14	1	1	3	1	2	2	3	0	4	8
190	15	2	2	2	2	2	1	0	0	2	9
191	16.5	1	3	1	1	2	2	0	4	8	14
192	14	2	1	1	2	2	1	0	0	4	9
193	16	1	3	1	1	2	1	0	0	9	13
194	15.3	2	2	1	2	2	2	0	0	4	14
195	16	2	3	2	1	1	1	7	0	8	13
196	14	1	1	1	1	2	2	0	0	4	10
197	16	2	3	1	1	2	2	0	0	10	15
198	16.2	1	3	2	1	2	1	0	0	6	14

199	16	1	3	1	1	2	2	8	0	7	12
200	15.6	2	2	1	2	2	1	0	6	3	15
201	14	1	1	2	1	2	2	0	0	0	9
202	16	1	3	1	2	2	1	0	0	0	15
203	14.3	2	1	1	1	2	2	0	0	5	7
204	15.4	1	2	2	2	2	2	0	0	8	14
205	15	2	2	2	1	2	1	0	0	0	12
206	16	1	3	2	2	2	1	9	0	9	15
207	15	1	2	3	1	2	1	0	7	3	9
208	14.2	2	1	3	1	2	2	2	0	0	10
209	16.5	2	3	1	1	2	1	10	0	9	14
210	14.4	1	1	1	1	2	1	1	0	3	10
211	16	2	3	2	1	2	2	0	0	9	14
212	15.4	2	2	1	2	2	1	3	0	6	14
213	16	1	3	2	1	2	2	0	0	9	13
214	14	2	1	1	2	2	1	0	3	0	8
215	15.3	1	2	1	1	2	1	0	0	9	13
216	14.4	2	1	1	1	2	2	0	0	4	10
217	16	1	3	3	2	2	1	8	9	7	12
218	16.8	2	3	1	1	2	2	0	8	7	13
219	14	1	1	2	1	1	2	2	0	4	9
220	16.3	2	3	1	1	2	2	8	0	0	15
221	15.8	1	2	1	2	2	1	0	0	3	14
222	14.2	2	1	1	1	2	2	0	2	2	11
223	16.7	1	3	1	1	1	1	4	0	0	14
224	14	1	1	1	2	2	1	0	0	4	12
225	15.3	2	2	2	1	2	2	2	0	0	10
226	14	2	1	2	2	2	1	2	0	1	9
227	16	2	3	1	1	2	1	0	7	5	15
228	16.3	1	3	2	2	2	2	0	0	6	15
229	14.5	1	1	2	1	2	2	0	0	2	9
230	15	2	2	2	1	2	2	1	0	3	13
231	14.2	2	1	2	1	2	1	0	5	4	8
232	14.9	1	1	1	1	2	2	0	0	0	13
233	16	2	3	2	2	2	2	0	0	8	12
234	15	1	2	2	1	2	1	2	0	0	11
235	14.3	2	1	1	2	2	1	0	0	3	15
236	14.4	1	1	3	1	2	2	0	0	2	9
237	16	2	3	2	1	2	1	6	4	9	12
238	15	2	2	1	2	2	2	0	0	2	14
239	14	1	1	1	1	2	1	0	0	4	9
240	16.3	2	3	1	1	1	1	9	0	0	14
241	15.6	1	2	1	1	2	2	0	0	3	13
242	14	2	1	1	1	2	1	0	0	4	10
243	15	1	2	2	1	2	1	0	3	0	12
244	16	2	3	2	1	2	2	0	9	12	13
245	16.4	1	3	2	2	2	1	0	7	9	13
246	14	2	1	2	1	2	1	1	0	0	9
247	16	1	3	1	1	2	1	0	0	4	13

248	15.2	2	2	2	2	2	2	0	0	3	13
249	16.3	1	3	2	2	1	1	10	0	8	12
250	16.5	2	3	2	1	2	2	0	0	4	13
251	14	2	1	1	2	2	1	0	0	0	7
252	15	1	2	2	1	2	2	0	0	0	14
253	14.3	2	1	1	2	2	1	2	0	3	10
254	16.5	2	3	1	1	1	1	6	0	10	12
255	15	2	2	1	1	2	2	0	0	2	15
256	16	1	3	2	2	2	1	0	0	10	12
257	16.8	2	3	2	2	2	2	0	1	9	11
258	15.3	1	2	1	1	2	1	0	0	6	15
259	15	2	2	2	1	2	2	1	0	0	12
260	16	1	3	2	2	2	2	0	0	6	10
261	16.4	2	3	1	1	2	2	0	10	9	14
262	15	1	2	1	1	2	2	0	0	0	15
263	14	1	1	2	2	2	2	0	0	0	9
264	16.3	2	3	1	1	1	1	4	0	7	15
265	16.2	1	3	1	1	2	2	0	5	8	15
266	14	2	1	1	2	2	1	0	0	5	12
267	16	1	3	1	1	2	2	0	0	0	14
268	14	2	1	1	1	2	1	0	0	0	13
269	16	1	3	2	2	2	1	0	0	10	13
270	15	2	2	1	1	2	2	0	0	0	15
271	16	1	3	1	1	2	1	6	0	6	15
272	16	2	3	1	2	2	2	0	0	6	15
273	14	2	1	2	1	2	2	3	4	6	10
274	15.5	1	2	2	1	2	1	0	0	5	11
275	14.3	2	1	1	1	2	2	0	0	5	12
276	16	1	3	2	2	2	1	0	0	7	12
277	15	2	2	1	1	2	1	0	3	2	14
278	16	2	3	2	1	2	2	0	4	0	14
279	15	1	2	1	2	2	1	0	0	3	13
280	16	2	3	1	1	2	2	8	0	4	14
281	14	2	1	3	2	2	2	0	0	3	7
282	15.6	1	2	2	1	2	1	0	0	1	15
283	16.6	2	3	1	1	2	2	0	0	2	14
284	15	2	2	1	1	2	1	0	0	2	12
285	14	1	1	2	1	2	2	0	0	2	8
286	16	1	3	2	2	2	1	0	5	0	14
287	14	2	1	1	1	2	2	1	0	3	13
288	16	1	3	3	2	2	2	0	0	2	8
289	15.9	2	2	2	1	2	1	0	0	0	13
290	14.3	1	1	3	1	2	2	0	0	3	6
291	16	2	3	1	1	2	1	0	0	8	15
292	15.9	1	2	1	1	2	2	7	0	4	12
293	14	2	1	2	1	2	2	0	0	2	11
294	15	2	2	1	1	2	1	0	0	6	12
295	14	1	1	1	2	2	1	0	0	5	9
296	16	2	3	1	1	1	2	5	8	0	15

297	16	2	3	1	2	2	2	0	0	12	15
298	14.2	1	1	2	1	2	1	0	0	2	8
299	14.7	2	1	1	1	2	1	0	0	4	10
300	14.4	1	1	2	1	2	2	1	0	3	10

KEY TO MASTER CHART

AGE:

14yrs-16yr 11months

GENDER:

Male-1

Female – 2

CLASS OF STUDY:

8th class -1

9th class-2

10th class-3

GRADES IN PREVIOUS CLASS:

A- >85% marks-- 1

B- 61 – 85% marks- - 2

C- < 60% marks –3

FAMILY INFECTED WITH COVID 19

YES-1

NO -2

DEATH IN FAMILY DURING COVID PANDEMIC

YES-1

NO -2

HAVE YOU INFECTED WITH COVID 19

YES -1

NO-2

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Document Information

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